

Claim 16 (Newly added)

A method for developing a maize plant in a maize plant breeding program using plant breeding techniques, which include employing a maize plant, or its parts, as a source of plant breeding material, comprising: using the maize plant, or its parts, of claim 8 as a source of said breeding material.

Claim 17 (Newly added)

*A²
cont*

The maize plant breeding program of claim 16 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

REMARKS

The present application relates to hybrid maize plant and seed 36A43. Claims 13-17 have been newly added. Claims 1-17 are currently pending in the present application. Applicant respectfully requests reconsideration and allowance of claims 1-17.

NEW CLAIMS

Applicant respectfully submits the following remarks directed to new claims 13-17 which better define the present invention, and do not represent new matter.

Claim 13 is directed to a maize plant, or its parts, wherein at least one of the ancestors of this plant is the maize hybrid 36A43. This claim describes and defines that the plant of claim 13 can arise from 36A43 or its parts, including

its seeds. In addition this claim clearly defines the essential features of hybrid 36A43 whereby plants having 36A43 as an ancestor can clearly be distinguished.

Claim 14 is directed to a method for producing a maize plant wherein the maize plant of claim 2, or its parts, is used as a source of plant breeding material. This method clearly defines a method utilizing the proprietary hybrid 36A43 to produce a maize plant. Claim 15 defines plant breeding techniques clearly described in the present application in the "Background of the Invention" (pages 1-7) and "Further Embodiments of the Invention" (pages 26-38) sections of the present application. These techniques can be utilized whether the newly produced maize plant is for small scale or large scale production such as a commercial hybrid or an inbred used to create a commercial hybrid. Claims 14 and 15 clearly define and distinctly claim the subject matter Applicant regards as the invention.

Claims 16 is directed to a method for producing a maize plant wherein the maize plant of claim 8, or its parts, is used as a source of plant breeding material. This method clearly defines a method utilizing the proprietary hybrid 36A43 which further contains one or more transgenes to create a maize plant. Claim 17 defines plant breeding techniques clearly described in the present application in the "Background of the Invention" (pages 1-7) and "Further Embodiments of the Invention" (pages 26-38) sections of the present application. Claims 16 and 17 clearly define and distinctly claim the subject matter Applicant regards as the invention.

In light of the above remarks, Applicant submits that the newly added claims 13-17 clearly define and distinctly claim the subject matter Applicant regards as the invention.

Applicant respectfully requests the Examiner consider and allow these newly added claims.

REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-12 stand rejected under 35 U.S.C. § 112, second paragraph, "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Claims 1-12 stand rejected for being vague and indefinite in the recitation of the limitations "ATCC accession number _____" and "36A43" as found in claims 1, 5 and 7 and in the claims that depend therefrom. The Examiner states that "amending the claims so as to refer to the ATCC accession number of the seed of corn hybrid line "36A43" would obviate this rejection." Applicant respectfully submits that a deposit will be delayed until notice of otherwise allowable claims as provided under 37 C.F.R. § 1.809. Once notice of allowable claims has been received by Applicant, a deposit will be made with the ATCC and the claims will be amended to recite the accession number.

Claims 5-8 stand rejected under 35 U.S.C. § 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner states that claims 5-8 are vague and indefinite in their recitation of the term "capable of expressing all the morphological and physiological characteristics of hybrid maize plant 36A43". The Examiner states that it is confusing and unclear whether the plant cell of the claim is "capable of expressing all the

"morphological and physiological characteristics" due to the presence of genes encoding these characteristics or because the plant comprises the molecular machinery that is necessary for expression of native and non-native genes.

Applicant respectfully traverses this rejection. It is submitted that the term "capable of expressing all the morphological and physiological characteristics of hybrid maize plant 36A43" is clear and is definite in light of the description of 36A43 in the specification.

Claims 5-8 are drawn to a maize plant regenerated from a tissue culture of regenerable cells of hybrid plant 36A43 and which is capable of expressing on the physiological and morphological characteristics of hybrid maize plant 36A43. Applicant respectfully submits that the physiological and morphological characteristics of hybrid maize 36A43 have been fully described and as such the recitation of all morphological and physiological characteristics is not confusing or indefinite. The present invention thus describes the relatively finite set of characteristics and traits that describe hybrid maize plant 36A43. Furthermore any plant having all the physiological and morphological characteristics which fully encompass the phenotypic characteristics of the claimed hybrid is fully described and these plants are encompassed by the scope of the claim as written. Therefore a maize plant regenerated from the regenerable cells of a tissue culture of maize plant of hybrid plant 36A43 which has all the physiological and morphological characteristics of hybrid maize plant 36A43 is described within the scope of this invention.

It would be well within the skill of an artisan to utilize such techniques as back-crossing, using molecular markers, or insertion of a gene using transformation techniques to introduce a single gene trait into a known and described line. Claim 5 clearly claims only those regenerated plants that express all of the physiological and morphological characteristics of hybrid maize plant 36A43. Also the specification states at page 7 lines 23-32 that certain changes such as single gene modifications and mutations or somoclonal variations are within the scope of the invention. Tissue culture regenerated plants expressing other than trivial modifications or mutations will not likely be viable nor will they likely express all the physiological and morphological characteristics of hybrid maize plant 36A43.

Therefore any trivial modification or mutation due to tissue culture regeneration or somoclonal variation will be encompassed by the description of this invention. In light of the above, Applicant respectfully submits that claims 5-8 and the specification does teach the metes and bounds of a maize plant having all of the physiological and morphological characteristics, which fully encompass the phenotypic characteristics of hybrid maize plant 36A43, including trivial modifications resulting from tissue culture or the in vitro manipulation of cells. This is so whether by the presence of molecular machinery or the presence of genes encoding these characteristics as pointed out by the Examiner.

Claim 6 was rejected under 35 U.S.C. § 112 second paragraph as being indefinite for failing to particularly

point and distinctly claim the subject matter which Applicant regards as the invention. The Examiner objects to the limitation "being of a tissue" as incorrect. The Examiner notes that while a cell can be of a tissue, a protoplast cannot, as protoplasts are not found "*in planta*".

A review of claim 6 as filed indicates that it does not contain the term "being of a tissue" and instead contains a recitation "from a tissue". It is submitted that the claim is already in proper form and the Examiner is respectfully requested to reconsider this rejection.

The Examiner has next rejected claim 7 under 35 U.S.C. § 112 second paragraph stating that it is unclear in the order of the recitation of limitation. The Examiner notes that an amendment of the claim to more clearly indicate that "36A43" has been deposited would overcome this rejection. In accordance with the Examiner's suggestion and in an effort to clarify and expedite prosecution, claim 7 has been amended to include ATCC Accession No. reference immediately preceding the deposit reference.

REJECTIONS UNDER 35 U.S.C. § 112 FIRST PARAGRAPH

Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention." The Examiner has noted that a perfected deposit of at least 2,500 seeds is one way to obtain enablement.

With regard to deposit of Hybrid 36A43, Applicant wishes to note that:

- a) during the pendency of this application access to the invention will be afforded to the Commissioner upon request;
- b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;
- c) the deposit will be maintained in a public depository for a period of thirty years, or five years after the last request for the enforceable life of the patent, whichever is longer;
- d) a test of the viability of the biological material at the time of deposit will be conducted (see 37 C.F.R. § 1.807); and
- e) the deposit will be replaced if it should ever become inviable.

Once again, Applicant wishes to state that the actual ATCC deposit will be delayed until the receipt of notice that the application is otherwise in condition for allowance. Once such notice is received, an ATCC deposit will be made, and the claims will be amended to recite the ATCC deposit number. In addition, Applicant submits that at least 2,500 seeds of Hybrid 36A43 will be deposited with the ATCC. In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw this rejection.

Claims 5-7 stand rejected under 35 U.S.C. § 112 first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in

the art to which it pertains to make and/or use the invention. The Examiner notes that claims 5-7 are drawn to a tissue culture that "regenerates plants capable of expressing all the morphological and physiological characteristics of said hybrid maize plant 36A43". The Examiner notes that the specification discloses physiological and morphological characteristics of hybrid maize plant 36A43 but does not describe other plants having all the physiological and morphological characteristics of the plant. The Examiner concludes that the invention claimed is broader than that which is enabled by deposit of hybrid seed 36A43 and cites the case Ex parte Tanksley, 37 U.S.P.Q. 1382.

Applicant respectfully traverses this rejection. It is noted that the Examiner cites the rejection of claims 5-7 stating that plant 36A43 is an inbred corn line, Applicant respectfully points out to the Examiner that 36A43 is a hybrid maize seed and plant. However the rejection will be addressed as it relates to hybrid maize plant 36A43.

Under Ex parte Tanksley claims in a patent application for a set of DNA marker clones useful for distinguishing between tomato varieties and for linking with traits of interest were found indefinite and broader than that wanted by the deposit of material which enabled the precise contribution to the art. Ex parte Tanksley references two figures in the patent application in question which depict map sites for these DNA marker clones. The figures include map distances with a cavia "it should be understood that variations of 5-10 cm are not statistically significant and clones within such distance of each other are within the scope of equivalents of

this invention."

The Applicant in Ex parte Tanksley was claiming a "scope of equivalents" which would include any probe or marker clone on a chromosome within a distance of 5-10 cm. The Board of Patent Appeals and Interferences held that this would be "analogous to extending coverage to other integers along the number line, not recited in the claims". The Board also held that in light of this ambiguity, the claims would take on an unreasonable degree of uncertainty and were indefinite within the meaning of 35 U.S.C. § 112 second paragraph.

In the present application, Applicant respectfully submits that the phenotypic characteristics of hybrid maize plant and seed 36A43 have been fully described. Further all plants meeting this description will have been fully enabled through a deposit with the ATCC of seed of hybrid 36A43. The present invention is clearly distinguished from the invention in Ex parte Tanksley because the present invention describe the relatively finite set of characteristics and traits that describe hybrid maize plant and seed 36A43 and not an indefinite array of traits.

The Examiner has stated that "the claims may be considered to cover the seeds in hybrid plants and its parts made by the use of 36A43 that have not been deposited with the ATCC so long as that seed hybrid plant and its parts have all the phenotypic characteristics of hybrid 36A43 to which representative seed have been deposited". Applicant respectfully submits that deposit of seed of hybrid 36A43 will fulfill the written description requirement and will enable one of skill in the art to make and use the invention.

Furthermore any plant having all the physiological and morphological characteristics, which fully encompass the phenotypic characteristics, of the claimed hybrid is fully described and enabled and these plants are encompassed by the scope of the claims as written. A plant which has all the physiological and morphological characteristics of hybrid 3491 is described and enabled and within the scope of this invention. Whether this plant came from the ATCC deposit, or an inclusion of the self inbred parents in a bag of hybrid seed, or was developed independently by a breeder.

The Examiner next states that "alternatively, claims may be interpreted to include trivial modifications of enabled seeds and hybrid plants of 36A43, its parts and hybrids." The Examiner states that "the specification does not teach the metes and bounds of such trivial modifications...". Applicant respectfully traverses. It would be obvious to one skilled in the art to utilize such techniques as that crossing using molecular markers or insertion of gene traits into a known and described line. These modifications are generally suggested in the specification at pages 31-44. Therefore utilizing the invention acquired either through deposit of ATCC seed or through inadvertent crossing of the inbred parent seed in the hybrid bag and making trivial modification via skills known to one skilled in the art would encompass by the description of this invention.

In light of the above, Applicant respectfully submits that the specification does teach the metes and bounds of a maize plant having all the physiological and morphological characteristics which fully encompass the phenotypic

characteristics of hybrid 36A43 including trivial modifications. Applicant respectfully requests reconsideration and withdrawal of these rejections.

REJECTIONS UNDER 35 U.S.C. § 103

The Examiner next rejects claims 5-7 under 35 U.S.C. § 103(a) as unpatentable over Duncan et al. The Examiner notes that claims 5-7 are directed to a tissue culture of regenerable cells wherein the tissue culture regenerates plants capable of expressing all the morphological and physiological characteristics of hybrid maize plant 36A43. The Examiner notes that Duncan teaches regeneration of maize plants from tissue culture, however the Examiner also correctly notes that Duncan does not teach a tissue culture derived from hybrid maize line 36A43. Applicant respectfully traverses and requests reconsideration.

As the Examiner himself has noted, Duncan does not teach or suggest hybrid maize plant 36A43 developed by a maize breeding program or the use of hybrid maize plant 36A43 in the production of tissue culture. It must be recognized that the hybrids provided by this invention are themselves unusual and unobvious results of a common process, in that they provide the unique combination of consistent high yield for its maturity, excellent stay green and very strong stalks. (See page 7 of the specification). Thus hybrid 36A43 deserves to be considered as new and nonobvious composition in its own right as does its tissue culture as products of the process when 36A43 is used as starting material. Applicant points out that 36A43 is a unique plant hybrid which never before existed

until Applicant filed the application and until its deposit of the same. While Duncan does teach the general regeneration of maize plants from tissue culture techniques, it does not teach or suggest the use of the unique maize hybrid 36A43. In light of the foregoing Applicant respectfully requests reconsideration.

CONCLUSION

Applicant submits that, in light of the foregoing amendments and remarks, claims 1-12 and new claims 13-17 are in condition for allowance. Reconsideration and early notice of allowability are respectfully requested.

Respectfully submitted,
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